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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WILSON, ALLAN R

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/530,271	Applicant(s) YOSHIHARA ET AL.	
	Examiner ALLAN R. WILSON	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

Newly submitted claim 13 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

- I. Claims 1-12, drawn to a semiconductor device, classified in class 257, subclass 30.
- II. Claim 13, drawn to a method of making a semiconductor device, classified in class 438, subclass 3.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as product made and process of making. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case unpatentability of group I invention would not necessarily imply unpatentability of the group II invention, since the device of the group I invention could be made by a process different than the one proposed in the group II invention. The device could be made by winding a second writing line around a second ferromagnetic tunnel junction element in the same direction and still be the same.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 13 is withdrawn from consideration as being directed to a

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non-elected invention. See 37 CFR 1.142(b), 37 CFR 1.145, MPEP § 821.03 and MPEP § 706.07(g).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claim 7, lines 6 and 8, the term "orientation" was not described in the original specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 7, lines 6 and 8, the term "orientation" is not distinctly claimed in a manner that one of ordinary skill in the art will understand what the applicants regard as the invention.

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Claims 7-12 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The first writing line having a first orientation to another element of the structure.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Witcraft et al. (US Pat. 6,771,533, hereinafter Witcraft).

Regarding claim 1, Figure 8 of Witcraft discloses a magnetic storage device of complementary type for storing storage data in a first ferromagnetic tunnel junction element 804 and a second ferromagnetic tunnel junction element 810 (col. 5, lines 52-54 and col. 12, lines 20-22), respectively, in which said magnetic storage device using said ferromagnetic tunnel junction elements is characterized in that: said first ferromagnetic tunnel junction element and said second tunnel junction element are formed adjacently on a semiconductor substrate; a first writing lines are wound around said first tunnel junction element like a coil and said second writing lines are wound around said second tunnel junction element like a coil; wherein a winding direction of

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said first writing lines and a winding direction of said second writing lines are reversed with respect to each other. Note that the "wound reversed" is relative to the starting/ending point of the winding process. It is essentially a product-by-process limitation that does not structurally distinguish the claimed invention over the prior art. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. In re Thorpe, 227 USPQ 964, 966. If a coil has two sides (side A and side B), the coil wound in a clockwise direction from side A to side B would have the same structure as if the coil were wound in a counter-clockwise direction from side B to side A. Both the first and second wiring coils can be considered to have either winding direction. Therefore, the "wound reversed" limitation does not structurally distinguish the claimed invention over the prior art.

Regarding claim 2, Figure 8 of Witcraft discloses the first and second writing lines are connected (by 610) at endpoints. Whether or not those endpoints are start-ends or terminal-ends depends on how the device is fabricated, meaning these limitations are merely a product-by-process limitations that do not structurally distinguish the claimed invention over the prior art. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. In re Thorpe, 227 USPQ 964, 966.

Regarding claim 5, Figure 8 of Witcraft discloses said first writing lines and said second writing lines comprising parallel wiring portions extending in a direction parallel to a

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magnetization direction of fixed magnetization layers at positions immediately above or immediately below said first ferromagnetic tunnel junction element 804 and said second ferromagnetic tunnel junction element 810.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Witcraft in view of Chen et al. (US Pat. 5,732,016, hereinafter Chen).

Regarding claims 3 and 4, Figure 8 of Witcraft discloses the first and second writing lines have upper and lower writing lines extending in a direction substantially perpendicular to a magnetization direction of said fixed magnetization layers, at positions above and below said first and second junction elements. The difference between Witcraft and the claimed invention is the first and second writing lines have parallel wiring portions which extend in a direction substantially parallel to a magnetization direction of fixed magnetization layers at positions immediately below said first tunnel junction element and said second tunnel junction element. Figures 8-11 of Chen disclose a magnetoresistive device with coil-shaped writing lines 80/86/87 surrounding a magnetoresistive element 84, wherein the writing lines have parallel wiring portions which extend in a direction substantially parallel to a magnetization direction of fixed magnetization layer at positions immediately below the element. In view of such teaching, it

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would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Witcraft by using the wiring structure of Chen for the purpose of selecting a wiring method that can be more easily fabricated.

Regarding claim 6, Witcraft does not disclose said first writing lines and said second writing lines comprise upper and lower writing lines extending in a direction perpendicular to a magnetization direction of said fixed magnetization layers of said first ferromagnetic tunnel junction element and said second ferromagnetic tunnel junction element. Chen illustrates in FIG. 11 a writing lines comprise upper 87 and lower 80 writing lines extending in a direction perpendicular to a magnetization direction of a fixed magnetization layers 84 of said ferromagnetic tunnel junction element. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Witcraft by using the wiring structure of Chen for the purpose of selecting a wiring method that can be more easily fabricated.

Response to Arguments

Applicant's arguments filed June 13, 2008 have been fully considered but they are not persuasive.

The argument that Witcraft does not describe lines that run in different directions or lines that are wound reversed with respect to each other is not persuasive. The direction the lines are wound makes no difference to the structure of the device. The lines have the same structure in the final device. As pointed out in the rejection, the limitation of "wound reversed" is a process limitation. Further, how the device performs is not claimed and would probably not make the

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claim patentable since the prior art device could perform the same. The Applicants should consider filing another patent that claims the method of making the device.

The argument that Witcraft does not describe a start-end portion of said second writing lines...connected to a terminal-end portion of said first writing lines to be a sequence of writing lines is not persuasive. Witcraft clearly illustrates in FIG. 8 the first wiring lines around 804 are connected to the second wiring lines around 810 by wire 610. As pointed out in the rejection, the limitation of "a start-end portion of said second writing lines...connected to a terminal-end portion of said first writing lines " is a process limitation.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The argument that Chen does not describe "extending in a direction parallel to a magnetization direction of fixed magnetization layers at positions immediately above or immediately below said first ferromagnetic tunnel junction element" is not persuasive. Chen illustrates in FIGs. 8-11 the writing lines have parallel wiring portions which extend in a direction substantially parallel to a magnetization direction of fixed magnetization layer at positions immediately below the element.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the

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time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Conclusion

Any inquiry concerning this communication or earlier communications from an examiner should be directed to Primary Examiner Allan Wilson whose telephone number is (571) 272-1738. Examiner Wilson can normally be reached 7:00-3:30 Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

\Allan R. Wilson\
Primary Examiner